Environmental Science

CONCENTRATION OF LEAD IN BIRD EGGSHELLS AND INVERTEBRATES FROM RUSH LAKE, WINNEBAGO COUNTY, WISCONSIN, Daniel Feld, Dr. William Brooks*, Dr. Colleen Byron*, Ripon College, Departments of Chemistry and Biology, Ripon, WI 54971, feldd@ripon.edu

It has been theorized that lead is one of the causes of a large decline in the number of breeding birds on Rush Lake, a 1300 ha prairie pothole located in SW Winnebago County, Wisconsin. Due to extensive hunting since 1840, it has been estimated that over 272,000 kg of lead shot can be found in the top meter of sediment in Rush Lake. This shot, as well as dissolved lead from waterfowl digestive processes, is accessible to birds and invertebrates in the ecosystem. Invertebrates and eggs were collected from Rush Lake during the summer of 2004, along with a group of Red-winged Blackbird (*Agelaius phoeniceus*) eggshells from a barrow pit in Appleton, WI, for comparison to store-bought chicken eggshells. All samples were dry ashed and analyzed for lead using Atomic Absorption Spectroscopy. The results showed no significant difference in the lead concentrations of the chicken eggshells and those of Red-winged Blackbird. This was also true for Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), Redhead (*Aythya americana*), American Bittern (*Botaurus lentiginosus*), Forster's Tern (*Sterna forsteri*), and Marsh Wren (*Telmatodytes palustris*). The lead concentration was found to be significantly higher in comparison to the chicken eggshells in midgeflies (*Chironomus* spp.), damselflies (*Enallagma* sp.), damselfly exuvia, and Dobsonfly (*Corydalus* sp.). Rush Lake snail shells (*Lymnaea stagnalis*) and the Mallard (*Anas platyrhynchos*) eggshells contained significantly lower amounts of lead than the chicken eggshells. There was also no significant difference between the Red-winged Blackbird eggshells from the barrow pit and those from Rush Lake.

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